

SUMMARY NOTE of the UK National Quantum Technologies Programme Strategic Advisory Board meeting held on Tuesday 30 September 2014 at the Department for Business, Innovation and Skills Conference Centre, London SW1.

Members Present:

Strategic Advisory Board Members

Dr. John Bagshaw	BAE Systems
Professor Dave Delpy (Chairman)	Independent
Professor Peter Dobson	University of Oxford/University of Warwick
Dr. Paul Hollinshead	UK Ministry of Defence
Mr. Mark Hughes	BT Security
Professor Sir Peter Knight	NPL Quantum Technology Champion
Professor Gerard Milburn	University of Queensland, Australia
Baroness Pauline Neville-Jones	UK Parliament, House of Lords
Professor Neil Stansfield	Dstl

UK National Quantum Technologies Programme Staff

Dr. Sue Armfield	BIS
Dr. Simon Bennett	Innovate UK
Dr. Rachel Bishop	EPSRC
Dr. Derek Gillespie	EPSRC
Miss Sarah Morgan	BIS
Dr. Daniel Smith	BIS
Dr. Lesley Thompson	EPSRC

Apologies

Dr. Angela Strank	BP
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NOTE: The Strategic Advisory Board agreed that further details of discussions under item (2) are to be used for the purpose of policy and strategy development and should therefore be exempt from public scrutiny, in accordance with section 36 (conduct of public affairs) of the Freedom of Information Act 2000.

1. Operational Update for the Quantum Technologies Strategic Advisory Board

- 1.1 The Strategic Advisory Board (SAB) noted and approved the summary note and associated actions arising from the June 2014 SAB meeting. The SAB noted the progress made in addressing the outstanding action points.
- 1.2 The SAB received an overview of activities undertaken by the Programme Operations Group (POG) members during the period July – September 2014. The SAB acknowledged the progress made by each organisation, and thanked the authors for preparing the reports.

- 1.3 The SAB discussed future and additional membership of the Strategic Advisory Board, and those gaps that required filling. The SAB reached the following conclusions:
- i. That Dr. Trevor Cross (e2v) be invited to sit upon the SAB as a representative of the KTN Special Interest Group.
 - ii. That the Quantum Technology Hub Directors nominate one of their number to sit upon the Strategic Advisory Board, and formally represent the view of the Hub network to the SAB.
 - iii. Dr. Angela Strank has informed the Chair that other professional commitments necessitate her standing down from the SAB. The Board decided that a new representative of the oil and gas exploration sector should be approached to join the Strategic Advisory Board.
- 1.4 The SAB discussed the creation of a risk register for the National Programme, and associated risk mitigation strategies.

2. Overview of the Process to Create a National Network of Quantum Technology Hubs

- 2.1 The SAB received an overview of the process used to create the national network of Quantum Technology Hubs, and discussed the results of the EPSRC-led competition.
- 2.2 The expected HM Government process for announcement of the Hubs, which involves approvals from both HM Treasury and the Department for Business, Innovation and Skills, was outlined to the SAB.
- 2.3 The SAB records that they welcome the progress made to date by EPSRC and partners on behalf of the National Programme, but stress in the strongest terms possible their desire to see the announcement of the Hubs expedited.
- 2.4 The SAB discussed an overview of the UK capabilities contained within the network of Quantum Technology Hubs, and those important capabilities that exist within the academic and industrial community but are not so strongly represented within the Hub network.
- 2.5 The SAB acknowledged that future activities from POG partners could be targeted to provide funding opportunities of various forms for important UK quantum technology capabilities both inside and outside of the Hub network.
- 2.6 The SAB requested an activity be undertaken to more fully map out capabilities and gaps, and that this should report back to the SAB at a future meeting. In referring to gaps, the SAB highlighted various aspects of solid state and photonic platforms for quantum technologies.

3. Developing a UK National National Strategy for Quantum Technologies

- 3.1 Following on from prior recommendations, the SAB reviewed and endorsed a draft framework for a UK National Quantum Technology Strategy.
- 3.2 The SAB emphasised that the Strategy must explain why the UK should continue to invest further public money in an emerging technology programme such as Quantum

Technologies. It was important to be clear on what the applications for quantum technologies were, and what problems such technologies could solve. The primary audience for the Strategy was HM Government, but a wider view of relevant and/or interested stakeholders should be formulated.

- 3.3 The SAB strongly recommended a completion date for the Strategy of February 2015. This would place the Strategy launch in advance of the upcoming General Election and subsequent Comprehensive Spending Review.
- 3.4 It was noted that completion of the work by this deadline would be challenging, but it was felt to be a necessary target. The SAB requested that a high-level project timeline be produced and that a series of interim teleconferences and meetings be instigated to monitor the project's progress.
- 3.5 The SAB thanked the POG members for their work in identifying which organisations would lead on respective work-streams of the Strategy. The SAB assigned themselves to each work-stream to act as 'champions' for progressing the content of each work-stream as follows:

Strategy Work-Stream	Lead SAB Member(s)	Lead POG Organisation
Strategic Vision and Contextual Information	David Delpy Gerard Milburn	EPSRC
Enabling a Strong Foundation of Quantum Technology Capability	Nominated Quantum Technology Hub Director	Dstl
Delivering a Skilled Quantum Technology Work Force	Peter Knight Pete Dobson	EPSRC BIS
Developing Technology for the UK Economy	Simon Bennett Pete Dobson	Innovate UK
Standards and Regulation	Peter Knight	NPL
Applications and Markets	Trevor Cross John Bagshaw Mark Hughes	Innovate UK KTN
Responsible Research and Innovation	Pauline Neville-Jones	EPSRC BIS
International Collaboration and Competition	Neil Stansfield	Dstl BIS

- 3.6 The SAB recommended that additional expertise be engaged in providing content and producing the final written material as required by each each work-stream.

4. International Collaboration Update

- 4.1 The SAB acknowledged the work of the Science and Innovation Network (SIN) and BIS in seeking and coordinating additional Growth Partnership Funding (GPF) for quantum technologies activities that would complement the work of the National Programme.

- 4.2 The SAB endorsed the suggestion that BIS and SIN could further develop a GPF opportunity around quantum technology in biological systems. It was felt that this was a science area in which the UK had research strengths, and could serve to maintain a healthy UK research base to feed into future quantum technology opportunities.
- 4.3 The SAB advised that the UK should seek to participate in the ongoing activity to create a new ERA-Net Co-fund ('QUANT-ERA') that focusses on quantum science and technology.

5. AOB

- 5.1 The SAB requested a copy of the current version of the communications plan for the National Programme, for their information.
- 5.2 The SAB agreed to keep a watching brief on the membership of the Advisory Board, and consider where strategic gaps exist or emerge.
- 5.3 The SAB recorded their thanks to Miss Sarah Morgan, whose secondment to BIS came to an end on 30 September 2014. Her contributions to the work of the UK National Quantum Technology Programme were highly valued by SAB members.
- 5.4 Dr. Daniel Smith has joined the BIS team on secondment from EPSRC, and will take over Sarah Morgan's role. The SAB warmly welcomed Daniel.

Dr. Derek Gillespie
October 2014